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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,253	12/22/2003	Dustin W. Carr	CARR 8-4-5	4460

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EXAMINER

DOAN, JENNIFER

ART UNIT PAPER NUMBER

2874

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/743,253

Applicant(s)

CARR ET AL.

Examiner

Jennifer Doan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-13,15-25,27-29 and 31-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22,23,25,27-29 and 31-40 is/are allowed.
- 6) ☒ Claim(s) 1,11-13 and 24 is/are rejected.
- 7) ☒ Claim(s) 3-10 and 15-21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

The indicated allowability of claims 1, 3-13, 15-25, 27-29 and 31-40 in the previous office action is withdrawn in view of the newly discovered reference(s) to Duveneck et al. (U.S. 2003/0108291). Rejections based on the newly cited reference(s) follow.

#### ***Specification***

1. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 11-13 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Duveneck et al. (U.S. 2003/0108291).

With respect to claims 1 and 24, Duveneck et al. disclose a method and an apparatus of a device comprising an optical waveguide having a first grating, wherein at least a portion of the waveguide has a functional layer adapted to bind an analyte (see [0046]); a plurality of grooves in the optical waveguide form the first grating (see [0037]); at least some of the grooves are covered by the functional layer (see [0048]); and when the analyte binds to the functional layer, the binding changes optical characteristics of the waveguide (abstract, lines 1-2 and 16; see [0004], [0047], [0048], [0049], [0050] and [0067]).

With respect to claims 11 and 13, Duveneck et al. disclose the method and the apparatus of the device, wherein the first grating is a Bragg grating (see [0025]).

With respect to claim 12, Duveneck et al. disclose a method for detecting an analyte, comprising transmitting light through an optical waveguide having a first grating; and measuring the transmitted light using a photo-detector (see [0074]), wherein at least a portion of the waveguide has a functional layer adapted to bind an analyte (see [0046]); a plurality of grooves in the optical waveguide form the first grating (see [0037]); at least some of the grooves are covered by the functional layer (see [0048]); and when the analyte binds to the functional layer, the binding changes optical characteristics of the waveguide (abstract, lines 1-2 and 16; see [0004], [0047], [0048], [0049], [0050] and [0067]).

***Allowable Subject Matter***

4. Claims 3-10 and 15-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record fails to disclose or reasonably suggest the method and the device, wherein the first grating has an optical reflection band characterized by a center wavelength and the binding shifts the center wavelength as recited in claims 3 and 15; further comprising one or more additional optical waveguides, each having a grating, wherein each grating has an optical reflection band characterized by a center wavelength and at least two gratings have different reflection bands as recited in claims 4 and 16; and further comprising a MZI having two arms, wherein one arm includes the optical waveguide as recited in claims 8 and 19.

5. Claims 22, 23, 25, 27-29 and 31-40 are allowed.

The prior art of record fails to disclose or reasonably suggest a device comprising a MZI having two arms, wherein one arm has an optical resonator and a section of the resonator has a function layer adapted to bind an analyte, wherein the optical characteristics of the resonator change, when the analyte binds to the function layer as recited in claim 22.

The prior art of record also fails to disclose or reasonably suggest a method and an apparatus of a device comprising an arrayed waveguide (AWG) having an input port

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and two or more output ports coupled to the two or more optical waveguides, wherein, for each optical waveguide, the AWG is adapted to route light having a corresponding center wavelength from the input port to the output port coupled to the optical waveguide in combination with the other limitations of claims 25 and 29.

The prior art of record also fails to disclose or reasonably suggest a method and an apparatus of a device comprising a MZI having two arms, wherein one arm includes the optical waveguide and wherein the first and second gratings form an optical resonator in combination with the other limitations of claims 32 and 35.

The prior art of record also fails to disclose or reasonably suggest a method and an apparatus of a device, wherein each grating has an optical reflection band characterized by a center wavelength and at least two gratings have different reflection bands in combination with the other limitations of claims 39 and 40.

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1, 3-13, 15-25, 27-29 and 31-40 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Doan whose telephone number is (571) 272-2346. The examiner can normally be reached on Monday to Thursday from 6:00 am to 3:30 pm, second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JD

July 31, 2006

  
JENNIFER DOAN  
PRIMARY EXAMINER